"Bioreactor"

ABSTRACT

The present invention relates to a process for producing a bioreactor using viable immobilized biological material and to the bioreactor itself.

More particularly, the present invention relates to a process for producing a siliceous layer capable of biomass immobilization and selectively cutting off macromolecules having a molecular weight higher than a selected threshold, comprising the steps of:

a) supplying a gas flow of a gas carrier saturated by a mixture of silicon alkoxides selected from the group comprising (1)$Si(OR)_4$, (2)$SiH(OR)_3$, (3)$R'Si(OR)_3$ and (4)$R'SiH(OR)_2$ wherein R and R', equal or different each other, are alkyl and/or aryl groups, wherein said gas flow is prepared by bubbling the gas carrier into a liquid mixture of said alkoxides in the ratio of (1)40-85/(2)0-60/(3)0-60/(4)0-60 (% v/v), preferably in the ratio of (1)40-85/(2)0-50/(3)0-50/(4)0-50 (% v/v), more preferably in the ratio of (1)50-80/(2)0-20/(3)5-30/(4)5-30 (% v/v), at a temperature of from 20 to 180°C, preferably of from 20 to 100°C, and

b) exposing a support comprising a biomass to the gas flow of step a),

wherein said selected threshold of molecular weight is chosen in the range of between 10,000 Dalton and 150,000 Dalton and wherein the ratio between the (1), (2), (3) and (4) Si derivatives in step a) is chosen as a function of the molecular weight of the macromolecules to be cut off.